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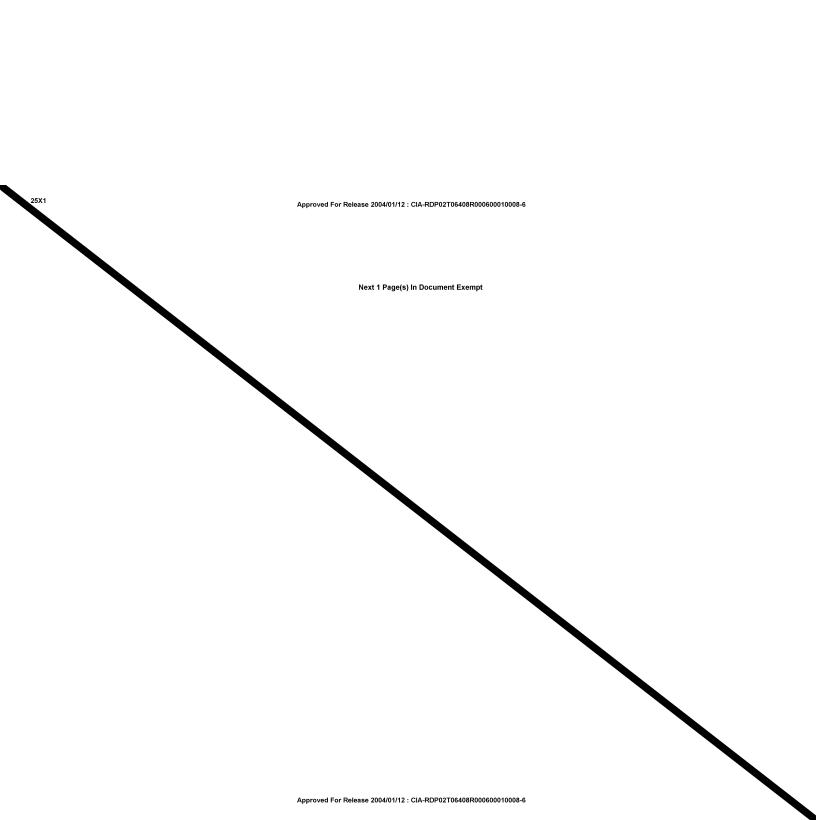
CHRONOLOGY OF EXPLOSIVES AND PROPELLANT PLANT 850 AND THE ROCKET MOTOR TEST FACILITY STERLITAMAK, USSR

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SEPTEMBER 1967
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ing and casting of solid rocket motors of various sizes. Numerous probable machining and finishing buildings are also located within the double base processing area. Supporting elements within the Double Base Propellant

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CHRONOLOGY OF EXPLOSIVES AND PROPELLANT PLANT 850 AND THE ROCKET MOTOR TEST FACILITY, STERLITAMAK, USSR

INTRODUCTION

This report, one of a series of chronological development studies of Soviet solid propellant production plants and their associated rocket motor test facilities, is concerned with Explosives and Propellant Plant 850 (BE 53-40N 055-57E) and the associated Rocket Motor Test Facility 753-41N 055-58E) at Sterlitamak, USSR. The 2 facilities (Figure 1) are located approximately 4.5 nautical miles north of Sterlitamak. In the report, the facilities will be referred to as the Double Base Propellant Plant and the Test Facility, respectively (Figures 2, 3, and 4). The 2 facilities are rail served and secured. Item numbers referred to in the text are keyed to Figure 4 and Table 1.

The nitroglycerin production area of the Double Base Propellant Plant contains 4 nitration lines. Two of the lines appear to be older Schmid/Meissener-type continuous nitrators and appear to be identical to those recently identified at Solikamsk Double Base Propellant Produc-1/ The other 2 lines appear to use the newer Biazzi-type continuous nitration process and appear identical to those identified at Kamensk-Shakhtinskiy, Perm, Biysk, Solikamsk, and Krasnoyarsk. 1-5/ The Double Base Propellant Plant also contains a typical Soviet nitrocellulose production area (items 24-29) and a probable nitrocellulose production area (items 149-156) which includes a nitric acid facility and an acid recovery system similar to those found at the abovementioned plants. A large double base processing area contains facilities that provide a capability for the extrud-Plant include a possible cellulose separation plant which is supported by the wood pulp processing facilities that are located at the south end of the Double Base Propellant Plant. A storage area, located directly northeast of the Double Base Propellant Plant, is secured by a double fence and contains 13 rail-served rocket motor/propellant storage buildings and 2 small revetted buildings possibly used for igniter storage (Figure 2).

has allowed a detailed functional analysis of the Double Base Propellant Plant and the Test Facility. A line drawing of the Double Base Propellant Plant and the Test Facility (Figure 4) is color coded to indicate the construction chronology of most of the structures in the 2 installations. Table 1 is keyed to the line drawing and presents relevant data for all major structures.

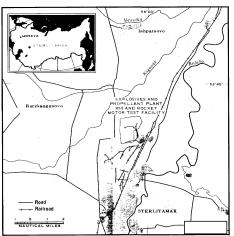


FIGURE 1. LOCATION MAP.

photography obtained in Recent table is divided into 2 sections corresponding to the Double Base Propellant Plant and the Test Facility. Steamlines and rail spurs are not included in the color coding due to a lack of sufficient early photography to follow their development from 1962-1967. Perspective and plan views of the casting and mixing building (item 105, plant area), the large horizontal test cell (item 1, test area), and the large assembly/checkout buildings (item 18, test area) are presented in Figures 5-7, respectively.

HIGHLIGHTS OF CHRONOLOGY

1944-1962

The Double Base Propellant Plant was not present on photography of the site. It was first hotography of nitroglycerin and nitrocellulose production areas and double base processing area were essentially complete on this photography. The plant had a conventional double base extrusion capability at that time.

The Test Facility, located at the north end of the complex, contained several significant structures which were probably complete. The large horizontal static test position and the associated H-shaped high-bay assembly/ checkout buildings (items 1 and 18, test area) were the most significant structures in the Test Facility. Similar assembly and checkout buildings have been identified at Biysk and Krasnoyarsk. 4, 5/

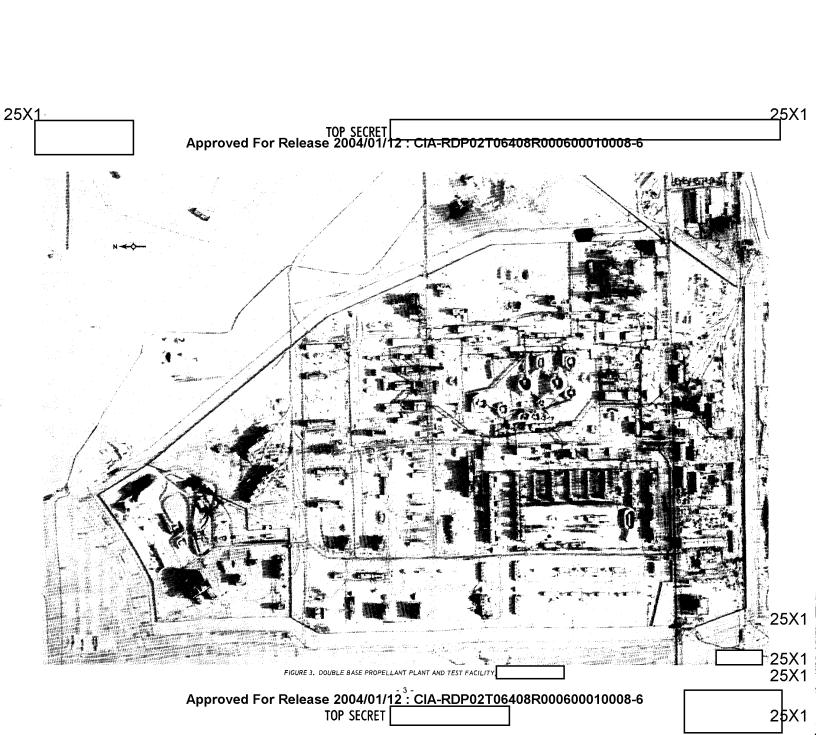
1963

The significant construction during the year was centered in the completion of numerous propellant processing structures whose probable function is the machining and final processing of double base propellant grains. In addition, 2 sets of rail-served "offset" buildings (items 2 and 3, plant area) were either complete or close to com-

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25X1

TOP SECRET Approved For Release 2004/01/12 : CIA-RDP02T06408R000600010008-6 25X1 TOP SECRET Approved For Release 2004/01/12 : GIA-RDP02T06408R000600010008-6 STORAGE AREA 25X1 FIGURE 2. EXPLOSIVES AND PROPELLANT PLANT 850 AND THE ROCKET MOTOR TEST FACILITY, STERLITAMAK, USSR, 25X1 Approved For Release 2004/01/12 : CIA-RDP02T06408R000600010008-6
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		Table 1. Resolution and Discretions of Startones at the Re-	ible Base Pro	mellont Plant and Test Facility Staditsmak	920, 4	
DEV4		Table 1. Description and Dimensions of Structures at the Dow (Hem numbers are	e keyed to Fig	gure 4)	-	25X1
25X1	Item Function/Description	Explanatory Notes	Item	Function/Description	Explanatory Notes	
	DOUBLE BASE PROPELLANT PLANT		107 Doc	able base processing bldg		
25Y1	1 Tank 2 Prob temperature conditioning bldgs	May contain fuel oil; appears ventilated May be used as rocket motor storage/curing; 3 southern parts complete in	108 Stor 109 Lag 110 Lag	rage bidg g storage bidg	Partially protected by earthern barricade Associated with small earth-covered bunker	
25X1	3 Prob temperature conditioning bldgs	northern completed in Gonstruction well advanced when first observed	110 Lag 111 Dou 112 Sup	s storage bldg able base processing bldg	Appears to be in midstage of construction	
	Support bldg Support bldg	00004 0000 0000 0000 0000 0000 0000 0000 0000	113 Doc 114 Doc	ble base processing bldg rape bldg g storage bldg g storage bldg ble base processing bldg ble base processing bldg ble base processing bldg ble base processing bldg		
	6 Poss barracks 7 Poss admin bldg/laboratory		115 Doc 116 Doc	ible base processing bldg		
	Proto temperature consustorang orage Support bldg Support bldg Pose barracks Pose admin bldg/laboratory Support bldg Pose curing/annomably bldg Pose curing/annomably bldg	May be final assembly hidg for a double base casting line	117 Lag 118 Doc 119 Pos	ble base processing bldg blbe base processing bldg blbe base processing bldg storage bldg ble base processing bldg is bolletnouse storage bldg rate bldg	Associated with small earth-covered bunker	
	11 Motor storage/assembly bldg		119 Pos 120 Las	s hollerhouse g storage bldg		
	12 Motor storage/assembly bldg 13 Tank	Poss a builer connected to heating system; covered by earthern bank	122 Ear			
	13 Tank 14 Prob control bunker 14 Motor storago/assembly bldg 16 Poss curing/assembly bldg	Processing control/personnel bunker associated with this item	123 Lug 124 Lug 125 Lug 126 Lug 127 Lug 128 Sup 129 Lug 130 Lug 131 Lug	th-covered bunker storage bldg storage bldg storage bldg storage bldg storage bldg storage bldg storage bldg storage bldg storage bldg	Coastruction continuing at NE corner of bldg	
	1s. Probació plant		126 Lag	g storage ning g storage bldg g storage bldg	Construction continuing at AL corner of stag	
	19 Prob acid plant 20 Prob acid plant 21 Prob acid plant	Height of bidg indicates vertical tanks associated with neid plant	128 Sup 129 Lag	port bldg g storage bldg		
		2 columns			,	
	23 Prob armonia storage section a Prob pumphouse	Prob procent; poor interpretability of photography procludes positive identification Earth-covered task; diameter approx	132 Lag 133 Lag 134 Lag 135 Lag 136 Lag 137 Sup 138 Sup 139 Por	z storage bldg gott bldg port bldg sec cellulose preparation bldg liter overs		
	b Prob ammonia tank c Prob ammonia tank		135 Lag	g storage bidg g storage bidg g storage bidg		
	d Prob ammonia tank e Prob ammonia tank	Earth-covered tank; diameter approx Earth-covered tank; diameter approx	137 Sup 138 Sup	port bldg port bldg		
	b Prob amoiona tank c Prob amoiona tank d Prob amoiona tank d Prob amoiona tank e Prob amoiona tank f Prob amoiona tank f Prob amoiona tank f Prob amoiona tank 21 Cellulose recovery/redlininary treatment bldg point 22 Prob off-loading point	include-covered state, distincted appearance Real served date, and by a page makes to ince in Real served. Someonder by a page makes to ince in Contains I high-play sections. Contains I high-play sections.	139 Por 140 Cor	es cellulose preparation bldg bling tower	Contains 3 cooling columns	
	24 Cellulose recovery/preliminary treatment bldg 25 Prob acid mixing bldg 26 Prob nitrator	Connected to Item 28 by pipeline; height given is for low-bay section Contains 9 highlaw sections	140 Coc 141 Pos 142 Pos 143 Pos	ss cellulose preparation bldg ss cellulose preparation bldg ss cellulose preparation bldg	Multilevel vented roofs; connected by conveyer to item 143 Contains 6 horizontal tanks along N side	
		Connected by conveyer to double base processing area	144 Tar	ss certinose preparation using its large/compressor bidg port bidg size glycerine bidg port bidg by the bidg bidg bidg bidg bidg bidg bidg bidg	Served by 2 mill spurs	
	27 Poss boting teb boses 28 Final nitrocellulose processing bldg 29 Byproducts recovery bldg 30 Nitrocellulose processing bldg 31 Nitrocellulose processing bldg 32 Cooling tower 33 Nitrocellulose grocessing bldg 44 Samont bldg	Connected by conveyer to item 28	144 Tar 145 Stot 146 Sup 147 Pos 148 Sup	port bldg is glycerine bldg		
	31 Nitrocollulose processing bldg 32 Cooling tower 33 Nitrocollulose processing bldg	3 columns	148 Sup 149 Pro 150 Pro	port bldg b cellulose treatment bldg		
	33 Nitrocellulose processing bldg 34 Support bldg		151 Pro	h acid recovery blde	Connected to item 153; contains distillation columns along side	
	35 Laboratory/support bldg 36 Storage bldg/scarchouse 37 Double base processing bldg			er tower b nitrator bldg	Connected by conveyet/pipe gallery to item 155; pipeline passess over item 154	
	33 Nitrocellatione grocessing long 34 Support hild; 35 Laboratory/support hild; 36 Storage hild; Marchause 37 Double base processing hild; 38 Double base processing hild; 39 Double base processing hild; 40 Double base processing hild; 41 Storage hild; 42 Storage hild; 43 Storage hild; 44 Storage hild; 45 Storage hild; 46 Storage hild; 47 Storage hild; 48 Storage hild; 49 Storage hild; 40 Storage hild; 41 Storage hild; 41 Storage hild; 42 Storage hild; 43 Storage hild; 44 Storage hild; 45 Storage hild; 46 Storage hild; 47 Storage hild; 48 Storag		154 Pro 155 Pin	b byproducts recovery bldg al nitroglycerin processing bldg	Similar in appearance and location to dem 28	
	40 Double base processing bldg 41 Storage bldg 42 Double base processing bldg	C-shaped revelment probably indicates sensitive storage				
			158 Stor 159 Pos	rage bldg is admin bldg		
	45 Support bldg	Small fenced area adjacent to bldg may contain transformer equipment Connected to item 50 by conveyor	159 Pos 160 War 161 War 162 War 163 Sup	recellulase processing hidg port lidig rape bidg sa admin bldg chouse chouse port bldg sperished grape/shop bidg		
	46 Double base processing bldg 47 Double base processing bldg 48 Vertical storage tanks	Connected to item 50 by conveyer Offloading facility suggests acid/glycerine handling	163 Sup 164 Stor	port bldg ruge/shop bldg		
	48 Vertical storage tanks 48 Support bldg 50 Ingredients propuration bldg 51 Ingredients propuration bldg 52 Support bldg 53 Support bldg 54 Support bldg 54 Support bldg	Connected to item 78 Presence of fractionating column indicates pose acid recovery		ragov.snop bidg port bidg port bidg ss wood pulp processing bldg sweeper bidg oading bldg date bidg oading bldg		
	49 Support bidg 50 Ingredients proparation bidg 51 Ingredients proparation bidg 52 Support bidg 53 Support bidg 54 Support bidg 55 Ingredients preparation bidg 65 Support bidg 66 Support bidg	Presence of fractionating column indicates poss acid recovery	166 Sup 167 Sup 168 Pos 169 Cor 170 Uni 171 Tar	port bldg ss wood pulp processing bldg	Multilevel structure feel by large conveyer system. Peeds conveyer system for item 168	
	53 Support bldg 54 Support bldg		169 Cor 170 Uni 171 Tar	oveyer feed bidg onding bidg	Batth-covered poss byproducts/slurry tanks	
	56 Support bldg 57 Nitrocellulose processing bldg				Earth-covered poss hyproducts/s(surry tanks	
	58 Poss acid recovery bldg 59 Nitrocellulose processing bldg	High stacks and associated buried tanks support identification C-shaped revelment with protected entrance indicates sensitive	172 Pro 173 Tar 174 Tar 175 Tar 176 Tar 177 Woo 178 Woo 179 Sup	nk nk	Earth-covered poss hyproducts/sturry tanks Earth-covered poss hyproducts/sturry tanks	
	60 Storage/control bldg 61 Vertical tank	C-shaped revenued with protocted entrance indicates sensitive storage/control function	176 Tar 177 Woo	nk nd pulp processing bldg		
	62 Support bldg		178 Woo 179 Sup 180 Shi	or purp processing bigg port bldg		
	63 Support bldg 64 Support bldg	Contains rail offloading points indicating receiving of nitroglycerin	181 Shi	pping/storage bldg pping/storage bldg		
	65 Acid preparation/storage bldg 66 Support bldg	ingrediants	183 Shi 184 Shi	h pumphouse is in it	Adjacent to rail spur	
	67 Ingredients preparation bldg 68 Ingredients preparation bldg	Probably utilized as a compressor bide providing inelatical			Adjacent to rail spur Adjacent to rail spur	
	69 Izaredients preparation bldg	Probably millord as a compressor bidg providing logistical supports in initiation facilities. support to initiation facilities. Associated with item 68 and connected to vertical cylinders diplacent to tem 68 and 69	188 Coc	pping one obling tower sport bldg so light flabrication bldg sping bldg pping bldg	Contains 2 columns	
	70 Acid premix bldg	adjacent to items 68 and 69	188 Sup 190 Pos 191 Shij 192 Shij 193 Shij 194 Shij 195 Pro 196 Sup 197 Sup 198 Sup 199 Sup 200 Sup 201 Gus	ss light fabrication bldg sping bldg	Numerous U/I objects, poss raw materials adjacent	
	71 Nitrator/separator bldg 72 Neutralizer bldg		192 Shi 193 Shi	pping bldg pping bldg	Adjacent to rail spur	
	73 Nitroglycorin magazine 74 Nitroglycerin magazine		194 Ship 195 Pro	pping bldg pping bldg b packing bldg	Adjacent to rail spur	
	75 Nitroglycerin magazine 76 Neutralizer bldg		196 Sup 197 Sup 198 Sup	port bldg port bldg port bldg		
	77 Nitrator/separator bidg 78 Nitrator/separator bidg	Heavily revetted; connected by conveyers/pipelines to items 50,	199 Sup 200 Sup	o packing using port blidg and barracks		
	78 Nitrator/separator bing 79 Nitrator/separator bildg	To, and so Beavily reacted; connected by conveyors/pipelines to items 70 and so				
	80 Neutralizer bldg	and 80 Heavily revetted	TEST FAC	CILITY rge horizontal test cell	Rail apprextends to front end of test cell; height only valid for SE end	
	81 Prob processing/control bldg 82 Double base processing bldg			all horizontal test cell	Rui apur estenda in front end of next cell; leight only valid for SE ved (see Figure 9) (see	
	83 Double base processing bldg 84 Pass nitrocellulose processing bldg	Appears identical to item 87		ss observation bldg strol bldg	Protected by C-shaped revoluent Connected by control cabletary to both (est cells (item 1 and 2)	
	85 Storage bldg/warehouse 86 Prob nitroglycerin processing bldg		5 Po	atrol bidg ss batch/quality testing bldg st support bldg oport bldg oport bldg oport bldg	Protected by C-shaped revetment	
	85 Storage bldg/warehouse 86 Prob nitroglycerin processing bldg 87 Nitrocellulose processing bldg 88 Double base processing bldg 89 Support bldg 90 Flow countel bldg 91 Double base processing bldg	Appears identical to item 84 Rail served	7 Sup 8 Sup	oport bldg oport bldg		
	89 Support bldg 90 Flow control bldg		10 Gu	ardhouse	Contains high-bay section on W side	
	91 Double base processing bldg 92 Support bldg 93 Support bldg 94 Nitroglycerin flow control bldg		11 Por 12 Por 13 Por	stiring inspection bidg stfiring inspection bidg	Tall cylindrical stack on W side	
		Connected by pipeline with nitreglycerin area and double base propellant processing and casting area.	14 Pro 15 Smi	stfiring inspection bldg se boilerhouse ob prefiring storage bldg all test position	Protected by visid of lighting rods Protected by visid of lighting rods Prob microscale test position Prob associated with earth-covered tank	
	95 Support bldg 96 Support bldg 97 Flow control bldg 98 Double base processing bldg		17 Tai	nk		
	97 Flow control bldg 98 Double base processing bldg	Possibly controls nitroglycerin flow to double base easting facility	18 Ass	sembly/checkout bldgs (5)	Total roof cover is (see Figure 7)	25X1

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100 Double have processing bldg

*All lengths and widths are overall measurements; all heights are to the highest part of the structure

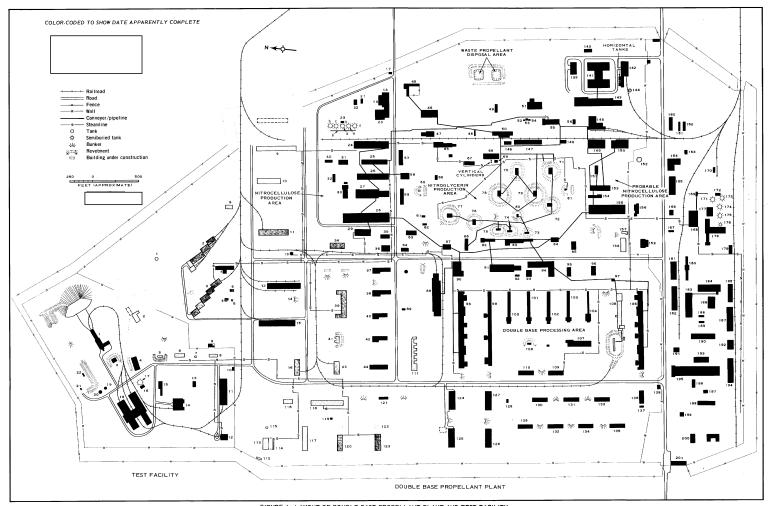
*Complete when first observed unless otherwise noted.

25X1

25X1

Prob associated with barrage-type rockets





25X1 * `

25X1

25X1

FIGURE 4. LAYOUT OF DOUBLE BASE PROPELLANT PLANT AND TEST FACILITY.

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25X1

25X1

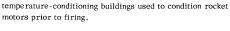
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A large double base mixing and casting building (item 105, plant area, and Figure 5) was completed by This construction may allow the production of somewhat larger motors than those previously produced by the conventional extrusion method. A small separately secured area located just east of the Test Facility was also completed. This area is possibly used for disposal of propellant waste or as a destruction facility for faulty motors. Similar areas are found at Biysk, Krasnoyarsk, Perm, and Kamensk-Shakhtinskiy rocket motor test facilities. 2-5/

pletion. These buildings are thought to be probable

FIGURE 5. PERSPECTIVE VIEW AND DIMENSIONS OF THE DOUBLE BASE CASTING BUILDING (item 105, plant area).

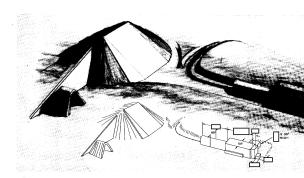


FIGURE 6. PERSPECTIVE VIEW AND DIMENSIONS OF THE LARGE HORIZONTAL TEST STAND (item 1, test area).

1965-1967

completion of 2 large buildings (items 9 and 10, plant area). The late construction of these buildings may indicate an association with the large double base casting and mixing building (item 105, plant area, and Figure 5). Frequent coverages during this time period allowed for a positive identification of the small horizontal test cell (item 2, plant area) as being similar, when complete, to those previously identified at Biysk and Krasnoyarsk. 6/ This test cell may be related to the previously completed construction activity at the offset and mixing and casting buildings. No evidence of test activity or items of solid propellant hardware has yet been observed at the Sterlitamak facilities.

Construction during this period was limited to the

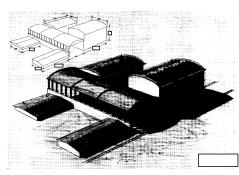


FIGURE 7. PERSPECTIVE VIEW AND DIMENSIONS OF THE ASSEMBLY/CHECKOUT BUILDINGS (item 18, test area).

- 6 -

25X1

25X1 25X1

25X1

25X1 25X1 25X1 25X1

25X1 **25X**1

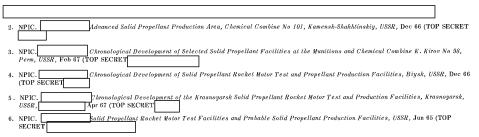
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MAPS OR CHARTS

ACIC. US Air Target Chart, Series 200, Sheet 0165-15

DOCUMENTS



REQUIREMENT

CIA. C-DI5-82,973

NPIC PROJECT

11212/66 (partial answer)

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